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MATERIAL SAFETY DATA SHEET

Company	Issue Date	Identification Number
BRALCO METALS 8321 CANFORD ST. PICO RIVERA, CALIFORNIA 90660	NOVEMBER 25, 1985 REVISED MARCH 1, 1988	SILICON BRONZE LEADED BRONZE ALUMINUM BRONZE
Trade Name (Common Name or Synonym) BRONZE	Emergency Phone Number 213-582-2272 213-723-3601	
Chemical Name	Formula	DOT Identification Number NA

I. INGREDIENTS

NOTE PRODUCTS UNDER NORMAL CONDITIONS DO NOT REPRESENT AN INHALATION, INGESTION OR CONTACT HEALTH HAZARD.

BASE METAL, ALLOYING ELEMENTS AND METALLIC COATINGS	CAS #	% COMPOSITION BY WEIGHT (1)	OSHA PEL	ACGIH TLV (mg/m³) (2)
Base Metal	CAS #		OSHA PEL	
Copper (Cu)	7440-50-8	70-99	1	1 (Dust & Mist)
Alloying Elements				
Nickel (Ni)	7440-02-0	0-14	1	1
Aluminum (Al)	7429-90-5	0-14	N.E.	10
Iron (Fe)	7439-89-6	<5	10	5 (As Iron Oxide)
Silicon (Si)	7740-21-3	<4	15	10 (Total Dust)
Manganese (Mn)	7439-96-5	<4	5	5 (As Dust-Ceiling)
Cobalt (Co)	7440-48-4	<2	.1	.1
Tin (Sn)	7440-31-5	<1	?	?
Zinc (Zn)	7440-66-6	<1	N.E.	5 (As Fume)
Leaded Alloys				
Lead (Pb)	7439-92-1	<1	.05	.15 (Dust & Fume)

(1) % OF ALLOYING MATERIAL VARIES WITH GRADE OF MATERIAL (2) 1985 - 1986 ACGIH THRESHOLD LIMIT VALUE

II. PHYSICAL DATA

Material is (At Normal Conditions)	Appearance and Odor			
☐ Liquid ■ Solid ☐ Gas ☐ Other	RED/GOLD METALLIC ODORLESS			
Acidity/Alkalinity	Melting Point	> 1700 F	Specific Gravity (H_2O = 1)	> 7
pH = NA	Boiling Point	NA F	Solubility in water (% by weight)	NA
				Vapor Pressure (mm Hg at 20 C) NA

III. PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection	Hands, Arms and Body
NIOSH/MSHA APPROVED DUST & FUME RESPIRATOR SHOULD BE USED TO AVOID EXCESSIVE INHALATION OF PARTICULATES WHEN EXPOSURE EXCEEDS TLV'S	PROTECTIVE GLOVES ARE RECOMMENDED DURING HANDLING OF FINES EXPOSURE
Eyes and Face	**Other Clothing and Equipment**
SAFETY GLASSES OR GOGGLES SHOULD BE UTILIZED AS REQUIRED BY EXPOSURE	OTHER PROTECTIVE EQUIPMENT SHOULD BE UTILIZED AS REQUIRED BY THE WELDING STANDARD

IV. EMERGENCY MEDICAL PROCEDURES

IF EXPOSED TO EXCESSIVE LEVELS OF METAL FUMES, REMOVE TO FRESH AIR,

SEEK MEDICAL AID IMMEDIATELY.

EYES: FLUSH WITH WATER FOR AT LEAST 15 MINUTES.

V. HEALTH/SAFETY INFORMATION

STEEL PRODUCTS IN THE NATURAL STATE DO NOT PRESENT AN INHALATION, INGESTION OR CONTACT HAZARD. HOWEVER, OPERATIONS SUCH AS BURNING, WELDING, SAWING, BRAZING AND GRINDING MAY RELEASE FUMES AND/OR DUSTS WHICH MAY PRESENT HEALTH HAZARDS IF TLV'S ARE EXCEEDED

MAJOR EXPOSURE HAZARD
☒ INHALATION ☐ SKIN CONTACT ☐SKIN ABSORPTION ☐INGESTION

Short term exposure to fumes/dust may produce irritation of eyes and respiratory system. Inhalation of high concentrations of freshly formed oxide fumes of copper and lead may cause metal fume fever characterized by a metallic taste in the mouth, dryness of the throat and influenza-like symptoms.

Inhalation or ingestion of lead particles may result in lead-induced systemic toxicity. Symptoms of lead poisoning include abdominal cramps, anemia, muscle weakness and headache. Prolonged exposure can cause behavioral changes, kidney damage, CNS damage, and reproductive effects.

Nickel is listed in the 3rd Annual Report on carcinogens as prepared by the National Toxicology Program (NTP). Exposure to high concentrations of dust and fumes can cause sensitization dermatitis, inflammation and/or ulceration of upper respiratory tract and possibly cancer of nasal passages and lungs.

Recent epidemiological studies of workers melting and working alloys containing nickel/chromium have found no increased risk of cancer.

SUSPECTED CANCER AGENT? NO. THIS PRODUCTS INGREDIENTS ARE NOT FOUND IN THE LISTS BELOW
✓YES FEDERAL OSHA ✓NTP IARC

Fire and Explosion	Flash Point NA F	Auto Ignition Temperature NA F	Flammable Limits in Air Lower NA % Upper %	Extinguishing Media NA
	Fire and Explosion Hazards: DUST HAZARD EXISTS UNDER FAVORING CONDITIONS OF SMALL PRACTICE SIZE. DISPERSION IN AIR AND STRONG IGNITION SOURCE MAY RESULT IN AN EXPLOSION			Extinguishing Media not to be used: NA
Reactivity	Stability ■Stable ☐Unstable	Incompatibility (Materials to Avoid): MERCURY, AMMONIA, ACETYLENE, ACIDS		
	Conditions to Avoid: EXPOSURE DURING STORAGE TO STRONG ACIDS, BASES OR OXIDIZING AGENTS			
	Hazardous Decomposition Products: TOXIC GASES, AEROSOLS & VAPORS MAY BE RELEASED IN A FIRE INVOLVING COPPER ALLOYS IF FUMES OF OTHER COMPOUNDS OR CONTACTING MATERIALS ARE INVOLVED			

VI. ENVIRONMENTAL

Spill or Leak Procedures: NA

Waste Disposal Method: ACCORDING TO LOCAL, STATE AND FEDERAL REGULATIONS

VII. ADDITIONAL INFORMATION

VENTILATION: LOCAL EXHAUST VENTILATION SHOULD BE UTILIZED WHEN WELDING, BURNING, SAWING, BRAZING, GRINDING OR MACHINING WHEN EXPOSURE EXCEEDS TLV'S

IN WELDING, PRECAUTIONS SHOULD BE TAKEN FOR AIRBORNE CONTAMINATES WHICH MAY ORIGINATE FROM COMPONENTS OF WELDING ROD

ARC OR SPARK GENERATED WHEN WELDING OR BURNING COULD BE A SOURCE OF IGNITION FOR COMBUSTABLE AND FLAMMABLE MATERIALS